

Notice of Allowability

Application No.

10/681,541

Examiner

Jennifer Yantorno

Applicant(s)

WANG ET AL.

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 6/29/2006.
2. ☒ The allowed claim(s) is/are 1-20, 22-29 and 31-34.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.


Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


JACK BERMAN
PRIMARY EXAMINER

DETAILED ACTION

Allowable Subject Matter

Claims 1-20, 22-29, and 31-34 are allowed.

The following is an examiner's statement of reasons for allowance: Regarding independent claim 10, the closest prior art does not teach or render obvious the claimed system for concentrating high energy particles on a predetermined area on a target semiconductor substrate comprising a high energy source for generating a predetermined amount of high energy particles, an electro-magnetic radiation source for generating one or more low energy beams, and a mask set exposed to the high energy source and the electro-magnetic radiation source, the mask set having at least one mask with at least one alignment area and at least one mask target area thereon, the mask target area passing more high energy particles than any other area of the mask, wherein the mask is aligned with the predetermined target semiconductor substrate using the low energy beams, wherein the high energy particles generated by the high energy source pass through the mask target area to land on the predetermined area on the target semiconductor substrate, and where the predetermined area receives the high energy particles with a collective energy exceeding a predetermined threshold, where the predetermined threshold is in a range between 1 to 5 MeV.

Regarding independent claim 14, the closest prior art does not teach or render obvious that the protection shield is attached to the mask.

Regarding independent claim 15, the closest prior art does not teach or render obvious that the mask set has one or more masks with their corresponding mask target

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areas aligned in sequence for sequentially downsizing a resulting area for passing the high energy particles, thereby concentrating the high energy particles on the predetermined area.

Regarding independent claim 22, the closest prior art does not teach or render obvious that the predetermined threshold is above 3 MeV.

Regarding independent claim 23, the closest prior art does not teach or render obvious a system for forming a semi-insulator area on a target semiconductor substrate comprising a high energy source for generating a predetermined amount of high energy particles, an electro-magnetic radiation source for generating one or more low energy beams, and a mask set having at least one mask with at least one alignment area and at least one mask target area thereon, the mask target area passing more high energy particles than any other area of the mask, wherein the mask is aligned with the predetermined target semiconductor substrate using the low energy beams, and wherein the high energy particles generated by the high energy source with a collective energy exceeding a predetermined threshold pass through the mask target area to transform the predetermined area on the target semiconductor substrate into the semi-insulator area, wherein the predetermined threshold is above 3 MeV.

Regarding independent claim 24, the closest prior art does not teach or render obvious that the mask set has one or more masks with their corresponding mask target areas aligned in sequence for sequentially downsizing a resulting area for passing the high energy particles, thereby concentrating the high energy particles on the predetermined area.

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Regarding independent claim 29, the closest prior art does not teach or render obvious that the predetermined threshold is in a range between 1 and 5 MeV.

Regarding independent claim 33, the closest prior art does not teach or render obvious that the protection shield is attached to the mask.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Yantorno whose telephone number is (571) 272-5918. The examiner can normally be reached on Monday-Friday, 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Lee can be reached on (571) 272-2477. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JY


JACK BERMAN
PRIMARY EXAMINER